

Appl. No. 10/021,250
Amendment dated: September 30, 2004
Reply to OA of: June 30, 2004

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

Claims 1-29(canceled).

30(new). A pneumatic microfluid driving system, comprising:
a servo-device for providing all kinds of combination models of airflow groups;
an air gallery structure, constructed inside the micro-reaction module for receiving said airflow; and

a connecting channel, co-constructed inside the micro-reaction module for connecting said air gallery structure and the reaction area on the micro-reaction module, and circulating airflow to drive fluid;

characterized in that said air gallery structure comprises a suction component for sucking out fluid on the micro-reaction module and an exclusion component for excluding fluid on the micro-reaction module;

wherein said suction component comprises an air gallery for receiving airflow provided by said servo-device and a micro-channel for connecting said air gallery to introduce airflow;

wherein said exclusion component comprises an air gallery for receiving airflow provided by said servo-device and a micro-channel for connecting said air gallery to channel airflow;

wherein said air gallery of said suction component comprises a throat portion to generate a low pressure zone compared to said connecting channel and said air gallery of said exclusion component comprises an exclusion structure that guide at least a part of air flow blows into said connecting channel.

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31(new). The pneumatic microfluid driving system as in claim 30, wherein said servo-device comprising:

an air compressor for providing all kinds of airflow combination models having various volumes and directions; and

a buffer tank for stabilizing airflow sent out by said air compressor.

32(new). The pneumatic microfluid driving system as in claim 30, wherein said connecting channel can be of T-shape connection or parallel connection.

33(new). The pneumatic microfluid driving system as in claim 32, wherein said parallel connection can be of suction type, exclusion type or intermediate type of connecting channels.

34(new). The pneumatic microfluid driving system as in claim 30, wherein said reaction area has microfluid channels.

35(new). The pneumatic microfluid driving system as in claim 30, wherein the end of said connecting channel can be connected to said microfluid channel of said reaction area.

36(new). The pneumatic microfluid driving system as in claim 30, wherein said micro-reaction module refers to the miniaturized chip whereon various kinds of reaction or analysis can be applied.

37(new). The pneumatic microfluid driving system as in claim 36, wherein said miniaturized chip refers to Labon-achip, biochip, etc.

38(new). The pneumatic microfluid driving system as in claim 31, wherein said air gallery structure, said connecting channel and said reaction area can all be integrally constructed on the micro-reaction module.

39(new). The pneumatic microfluid driving system as in claim 31, wherein said airflow combination models refer to the velocity combinations of inlet airflow inputted into said air gallery of suction component and said air gallery of exclusion component respectively.

40(new). A pneumatic microfluid driving method for driving a fluid to proceed, recede, or stop in a microchannel belonging to a micro-reaction module by using the pneumatic microfluid driving system as in claim 1, said method comprising:

utilizing said servo-device for providing all kinds of combination models of airflow;
introducing said airflow into said suction component and said exclusion component respectively; and

driving fluid in the microfluid channel to cause minute microfluid movement effects like proceeding, receding and stopping.

41(new). The method as in claim 40, wherein the operation of suction and exclusion of airflow can be controlled via the structural design of said suction component and said exclusion component of said air gallery structure by utilizing the Bernoulli's equation.

42(new). The method as in claim 40, wherein said combination models of airflow refer to the combinations of inlet airflow velocity (V_s) in the suction component, and inlet airflow velocity (V_e) in the exclusion component.

43(new). The method as in claim 40, wherein said fluid refers to samples or reagents.